報　文

画像解析によるランダムなしわ布の視覚的回復の評価

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Evaluating Visual Recovery of Randomly Wrinkled Cloths Using Image Analysis

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Abstract

Gray scale image analysis was used to investigate visual relaxation behavior of randomly wrinkled cloths including wrinkles like ripple and irregularly folded creases. Randomly and irregularly wrinkled plain cloths of acetate, polyester, cotton, flax, wool and silk were formed by firstly grasping in both hands, after then by applying a load of 5kgf for 30 min. Images of randomly wrinkled cloths were measured in the fixed every time using color scanner. The contrast, correlation and entropy extracted from the gray level co-occurrence matrix were measured as visual feature parameters. The fractal dimension was determined from the fractal analysis of the relief of the curved surface of the gray level image. These image information parameters were found to be useful for characterizing the visual recovery of randomly wrinkled cloths. A parameter ratio was calculated by dividing an image information parameter at some time by one at time zero. Most of parameter ratios decreased more or less exponentially with the increase of time. A parameter of visual wrinkle recovery index was obtained to describe the visual relaxation behavior of wrinkle recovery from the analogy of mechanical stress relaxation behavior. The evaluation for visual recovery of randomly wrinkled cloths was established in this study.

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